

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A direct oxidation electrochemical fuel cell comprising a stack of electrode and membrane elements, said direct oxidation electrochemical fuel cell producing electrical current through the oxidation of a fuel containing a secondary alcohol and absent an acid.

Claim 2 (original): The electrochemical fuel cell in accordance with claim 1, wherein said secondary alcohol comprises at least one hydroxyl (-OH) group.

Claim 3 (original): The electrochemical fuel cell in accordance with claim 1, wherein the secondary alcohol may also comprise functional groups selected from a group consisting of: -CHO, -COOH and =C=O.

Claim 4 (original): The electrochemical fuel cell according to claim 1, wherein the secondary alcohol comprises 2-propanol ($\text{CH}_3\text{CHOHCH}_3$).

Claim 5 (original): The electrochemical fuel cell according to claim 1, wherein the secondary alcohol comprises glycerol ($\text{CH}_2\text{OHCHOHCH}_2\text{OH}$).

Claim 6 (original): The electrochemical fuel cell according to claim 1, wherein the secondary alcohol comprises propylene glycol ($\text{CH}_3\text{CHOHCH}_2\text{OH}$).

Claim 7 (original): The electrochemical fuel cell according to claim 1, wherein the secondary alcohol is glyceraldehyde ($\text{CH}_2\text{OHCHOHCOH}$).

Claim 8 (original): The electrochemical fuel cell according to claim 1, wherein the alcohol includes ethylene glycol ($\text{CH}_2\text{OHCH}_2\text{OH}$).

Claim 9 (currently amended): The electrochemical fuel cell according to claim 1, wherein the fuel ~~includes~~ comprises at least one of the short chain alkanones ~~such as:~~ propanone (CH_3COCH_3), butanone ($\text{CH}_3\text{CH}_2\text{COCH}_3$), and pentanone ($\text{CH}_3\text{COCH}_2\text{CH}_2\text{CH}_3$, $\text{CH}_3\text{CH}_2\text{COCH}_2\text{CH}_3$).

Claim 10 (original): The electrochemical fuel cell according to claim 1, wherein the fuel cell is selected from a group of fuel cells consisting of a liquid electrolyte fuel cell, a solid membrane fuel cell, an alkaline fuel cell, a phosphoric acid fuel cell, a molten carbonate fuel cell, and a solid oxide fuel cell.

Claim 11 (original): The solid membrane fuel cell according to claim 10, wherein the membrane includes any cationic and anionic membrane.

Claim 12 (original): The solid membrane fuel cell according to claim 10, wherein the membrane includes a membrane element selected from a group consisting of: non-fluorinated, partially fluorinated, and perfluorinated membranes.

Claim 13 (original) The solid membrane fuel cell according to claim 10, wherein the membrane is a proton exchange membrane.

Claim 14 (original): The electrochemical fuel cell according to claim 1, further comprising means for eliminating poisoning species formed during the fuel cell operation by periodically applying a positive voltage that is in an approximate range of between 0.2 V and 1.0 V to oxidize the poisons.